

S/N 09/338,045  
Docket: GB919980092US1

**IN THE CLAIMS:**

The current claims read as follows:

1-30. (Canceled)

31. (Previously presented) A method of managing an object in a thread stack based garbage collected virtual machine, said method comprising:

storing an object data structure in the thread stack comprising a reference to the object and a reference to a previously stored object data structure in the stack, whereby the object data structure and the previously stored object data structure form a root set of data object structures;

linking the object data structure to the previously stored object data structure;

storing a variable pointing to the previously stored object data structure at the top of the stack;

using the variable when storing a new object data structure; and

updating the variable with the new object data structure reference.

32. (Previously presented) A method as claimed in claim 31 further comprising:

saving the variable pointer;

storing the object data structure;

updating the variable with the reference to the latest stored object data structure;

performing the process ; and

restoring the stack pointer.

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33-37. (Canceled)

38. (Previously presented) A method of garbage collecting memory, said memory having objects, said objects having object pointer structures references in a thread stack, said method comprising:

retrieving an object pointer structure from the thread stack;

extracting, from the object pointer structure, a reference to its corresponding object and a reference to a next object pointer structure in the thread stack;

performing said retrieving and said extracting with respect to a next, subsequent and last object pointer structures, whereby the retrieved object references identify a root set of objects within the memory; and

reclaiming the memory not used by the root set of objects.

39. (Previously presented) The method of claim 38, further comprising:

compacting the root set of objects so that they are contiguous in memory and updating all object pointers and references in the thread stack.

40. (Previously presented) A method of garbage collecting memory, said memory having objects, said objects having an object reference within an object pointer structures references in a thread stack, said method comprising:

storing object pointer structures in the thread stack, each object pointer comprising a reference to an object and a reference to a subsequent object pointer structure in the thread stack such that the object pointer structures are a linked list;

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identifying a root set of objects from the linked set of object pointer structures ;  
identifying all objects referenced directly or indirectly by the root set objects; and  
reclaiming the memory space not used by the identified objects.

41. (Previously presented) The method of claim 40, further comprising:

storing a variable referencing to the last stored object pointer;  
using the variable when storing a new object pointer; and  
updating the variable with the new object pointer reference.

42. (Previously presented) The method of claim 40, further comprising:

compacting the identified set of objects so that they are contiguous and updating all  
object references in the stack.